

AMENDMENTS TO CLAIMS

Please cancel claims 1 to 3 as originally submitted; and

Add new claims 4 to 12 submitted herewith.

1. [CANCELED]
2. [CANCELED]
3. [CANCELED]
4. [NEW] A bicycle crank and pedal assembly with a self-extending and retracting crank arm; said assembly comprising:
 - a crank arm with a plate cavity, a bar track, and two slits;
 - a bar inside said bar track in said crank arm; said bar being fixed to a pedal spindle at one end; and
 - a plate shaft; said plate shaft being fixed to a plate at one end and to a pedal at the other end; said plate being inside said plate cavity in said crank arm.
5. [NEW] The bicycle crank and pedal assembly of claim 4, wherein said plate shaft is partially inside a cylindrical hole along the axis of said pedal spindle; wherein the axes of said pedal spindle and said plate shaft are co-located; wherein said slits in crank arm restrict movements of said plate shaft and said pedal spindle to movements closer to or farther away from the crank axis.
6. [NEW] The bicycle crank and pedal assembly of claim 5, wherein the axis of said pedal spindle is spaced apart and parallel to the rotation axis of said crank; wherein the perimeter surface of the said plate cavity operatively cooperates with said plate to change the distance between the axes of said crank and said pedal spindle during cycling.
7. [NEW] The bicycle crank and pedal assembly of claim 6, wherein the perimeter surface of said cavity operatively cooperates with said plate to increase the distance between the axes of said crank and said pedal spindle from a minimum value to a maximum value in the first half of the power down stroke and keep said distance at said maximum value in the second half of the power down stroke.

8. [NEW] The bicycle crank and pedal assembly of claim 6, wherein the perimeter surface of said cavity operatively cooperates with said plate to decrease the distance between the axes of said crank and said pedal spindle from said maximum value to said minimum value in the first half of the return upstroke and keep said distance at said minimum value in the second half of the return upstroke.
9. [NEW] The bicycle crank and pedal assembly of claim 4, wherein the axis of said pedal spindle is spaced apart and parallel to the rotation axis of said crank; wherein the perimeter surface of the said plate cavity operatively cooperates with said plate to change the distance between the axes of said crank and said pedal spindle during cycling.
10. [NEW] The bicycle crank and pedal assembly of claim 9, wherein the perimeter surface of said cavity operatively cooperates with said plate to increase the distance between the axes of said crank and said pedal spindle from a minimum value to a maximum value in the first half of the power down stroke and keep said distance at said maximum value in the second half of the power down stroke.
11. [NEW] The bicycle crank and pedal assembly of claim 9, wherein the perimeter surface of said cavity operatively cooperates with said plate to decrease the distance between the axes of said crank and said pedal spindle from said maximum value to said minimum value in the first half of the return upstroke and keep said distance at said minimum value in the second half of the return upstroke.
12. [NEW] The bicycle crank and pedal assembly of claim 4, wherein said pedal spindle is a solid rod; wherein said plate shaft has a cylindrical hole along the axis; wherein said pedal spindle is partially inside said cylindrical hole; wherein said pedal spindle and said plate shaft have co-located axes.

In support of compliance of New claims 4 - 12

The Examiner's 35 U.S.C. §112, second paragraph rejection of claims 1 to 3 has been carefully considered. With the set of new claims 4 to 12 now submitted herewith (underlined for ease of reference), the Applicant believes the language now meets the patentability requirement and respectfully request the Examiner to conduct further searches on the basis of these new claims thereof. New claims 4 to 12 are of more restricted scope and are believed to define more clearly various aspects and embodiments of the invention while distinguishing over the prior art known to the Applicant.

In support of inventiveness of New claims 4 to 12

The Examiner's 35 U.S.C. §102 (b) rejection of claims 1 to 3 as being unpatentable over Dwight in the view of a bicycle crank arm structure (U.S. Patent No. 4,673,178) has been carefully considered. The Applicant submits new claims 4 to 12 herewith, which replace the original claims 1 to 3.

The Applicant refers the Examiner to the distinguishing comments submitted on August 24, 2005 with respect to the cited prior art Dwight.

In view of the foregoing, it is believed that the present application is now in good condition for further examination, and allowance of the application is respectfully requested.

Respectfully submitted,

Wing T. Yan
WTY/ty
Agent For Applicant
Customer No. 59053
Registration No. 46499

Dated: March 22, 2006

Enclosures:

1. A mark-up copy of the revised application, including summary, disclosure, abstract and claims;
and
2. A clean copy of the revised application.